



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| | | | | |
|--|-------------|----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/506,604 | 03/28/2005 | Edwin Nun | 258011US0X PCT | 4900 |
| 22850 | 7590 | 05/14/2009 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | CHAU, LINDA N | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1794 | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 05/14/2009 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

| | | | |
|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/506,604 | Applicant(s) NUN ET AL. | |
| | Examiner LINDA CHAU | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/2/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/15/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 and 6-8 are rejected on the ground of nonstatutory double patenting over claims 1-5 and 8-9 of prior Nun et al. (U.S. Patent No. 6,811,856). Nun patent claims all of the features of the present claim except for the "injection molding" However, the limitation “injection molding”, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be

Art Unit: 1794

the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Claims 12, 21-25, and 31 are rejected on the ground of nonstatutory double patenting over claims 1 and 10-16 of Nun et al. (U. S. Patent No. 6,811,856) in view of Keller et al. (US 2002/0016433). Nun teaches that the particles are secured to the surface by a physical method (claim 1), however, doesn't specifically state that the process is of injection molding. Keller teaches a production of shaped articles from injection molding [0076] where the hydrophobic powder particles are fix on the surface of the substrate to be coated or to produced a shaped article [0024], which the powder particles are later pressed into the surface of the injection molding with a pressure of 7.4×10^7 Pa [0131]. It would have been obvious to one of ordinary skill in the art at the time of the invention to produce Nun's article in such a way taught by Keller because the articles taught by Nun can be made via injection molding by Keller's compressed step.

Claims 1-3, 6, and 10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11-16 of copending Application No. 10/506,993. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application teaches a molding with self-cleaning properties, wherein the surface has securely anchored microparticles which form elevations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 8-9, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by **Barthlott** (WO96/04123 published date of 2/15/96; herein referred to under the US equivalent 6,660,363).

Regarding claims 1 and 30, Barthlott teaches self-cleaning surface wherein the surface has securely anchored particles by gluing hydrophobic particles to the surface, which would form elevations (col. 2, lines 21-25 and Abstract). Further, it is noted that the hydrophobic particles on the surface of the substrate is consider a layer. Further, the limitation “injection molding”, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to

Art Unit: 1794

come forward with evidence establishing an unobvious different between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Regarding claim 2, Barthlott teaches that the elevations have an average height of 5-100 μm and an average separation of 5-200 μm (Abstract).

Regarding claim 8, Barthlott teaches that the particle have hydrophobic properties (col. 3, lines 7-8).

Regarding claim 9, Barthlott teaches that the material is polyethylene (Example 1).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6-7, and 10-11 are rejected under 35 U.S.C. 102(e) as being anticipated by **Baumann et al.** (US 6,800,354).

Regarding claim 1, Baumann teaches a self-cleaning surface wherein the surface has securely anchored microparticles which form elevations (col. 3, lines 48-61). Further, the limitation “injection molding”, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different

Art Unit: 1794

process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Regarding claims 2 and 3, Baumann teaches that the surface has a height profile of 0.1-50 μm and a separation of 0.1-50 μm (col. 5, lines 14-18).

Regarding claims 6 and 7, Baumann teaches the microparticles as presently claimed (col. 3, lines 24-29).

Regarding claim 8, Baumann teaches that the microparticles have hydrophobic properties (col. 3, lines 59-61).

Regarding claim 10, Baumann teaches self-cleaning particles on a substrate with a height of 0.5-15 μm (col. 5, lines 13-17), which are embedded (col. 4, lines 23-27), forming a layer with a thickness of 5-1000 nm (col. 8, lines 29-39), which would inherently be impressed by at least 10% of the particle diameter for the purpose of providing a self-cleaning article (col. 2, lines 66-67).

Regarding claim 11, Baumann teaches that the diameter of the particles is less than 100 nm (col. 3, lines 12-13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 6-7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Barthlott** (WO96/04123 published date of 2/15/96; herein referred to under the US equivalent 6,660,363) and in view of **Huffer et al.** (WO01/73162 published date; herein referred to under the US equivalent 6,783,807).

Regarding claim 3, Barthlott teaches a self cleaning surface as set forth above, however, fails to teach the height elevations and separations as claimed. Barthlott teaches that height and separations starts at 5 μm (Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize Barthlott's height and separation to be of 4 μm as claimed so that the surface cannot be detached by water or by water containing detergents (col. 2, lines 16-20). Further, Huffer teaches an article comprising self-cleaning properties (col. 3, lines 53-55, col. 4, lines 20-22, col. 6, lines 1-7, and col. 9, lines 57-61) having an elevations with an average height and separations as claimed (col. 3, lines 65-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott's article to have an elevation as claimed in order to reduce the tendency of the surfaces to accumulate solids (col. 3, lines 53-55).

Regarding claims 6-7, Barthlott doesn't specifically teach the material of the hydrophobic particles as claimed. Huffer teaches that the microparticles are selected from the group claimed by the applicants (col. 4, lines 6-12). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Barthlow's particles to be as presently claimed, since Huffer teaches that it will reduce the tendency of the particles to accumulate solids from fluids with formation of deposits (col. 4, lines 20-22).

Art Unit: 1794

Regarding claim 11, Barthlott doesn't specifically teach the diameter of the particle size, however, Barthlott does teach that optimum results are only achieved if the particles are employed having a relatively narrow grain size distribution (col. 3, lines 8-11). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott's particle size to be within the range as claimed in order to obtain a desired surface structure (col. 3, lines 6-7). Further, Huffer teaches that the particles have a mean diameter of 1-50 μm (col. 6, lines 23-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Barthlott's particle to be within the particle size as claimed, since Huffer teaches that having a larger particle size is not preferred for a self cleaning article (col. 6, lines 25-26).

Claims 10 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Barthlott** (WO96/04123 published date of 2/15/96; herein referred to under the US equivalent 6,660,363), and in view of **Baumann et al.** (US 6,800,354).

Regarding claim 10, Barthlott doesn't teach that the microparticles are impressed into the surface in an extent of 10-90% of their average particle diameter. Baumann teaches self-cleaning particles on a substrate with a height of 0.5-15 μm (col. 5, lines 13-17), which are embedded (col. 4, lines 23-27), forming a layer with a thickness of 5-1000 nm (col. 8, lines 29-39), which would obviously be impressed by at least 10% of the particle diameter for the purpose of providing a self-cleaning article (col. 2, lines 66-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott's particles to be

Art Unit: 1794

impressed by at least 10% and not more than 90% of their diameter, as taught by Baumann, in order to provide an article with a self-cleaning surface.

Regarding claim 27, Barthlott doesn't teach that the microparticles are anchored to the surface without any additional securing material. Baumann teaches that the particles are fixed to substrate and then a coating overlay (col. 3, lines 51-54). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott to the teachings of Baumann in order to firmly secure the particles to the substrate and that it is known in the art of self-cleaning surfaces that particles can adhere or fixed to the substrate without any additional securing material.

Claims 12, 14, 16-19, 25-26, and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Barthlott** (WO96/04123 published date of 2/15/96; herein referred to under the US equivalent 6,660,363) and in view of **Keller et al.** (US 2002/0016433).

Regarding claims 12, 25, and 28-29, Barthlott doesn't teach an injection molding step. Keller teaches a production of shaped articles from injection molding [0076] where the hydrophobic powder particles are fix on the surface of the substrate to be coated or to produced a shaped article [0024], which the powder particles are later pressed into the surface of the injection molding with a pressure of 7.4×10^7 Pa [0131]. It would have been obvious to one of ordinary skill in the art at the time of the invention to produce Barthlott's article in such a way taught by Keller because the article taught by Barthlott can be made via injection molding by Keller's compressed step so that the surface structure has elevations.

Regarding claim 14, Barthlott teaches that the material is polyethylene (Example 1).

Regarding claim 16, Keller teaches that the composition can be applied by aerosol, which is a type of spraying [0068].

Regarding claim 17, Barthlott teaches a suspension comprising of hydrophobic particles and a solvent, wherein the solvent is dried or evaporated (col. 2, lines 54-59).

Regarding claim 18, Keller teaches an article produced by injection molding [0076] with the application of hydrophobic particles [0013], which are formulated by aerosols by propellant gases [0068]. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Keller's process to produce Barthlott's article, since it would easily coat the article by spray to obtain a self-cleaning surface.

Regarding claim 19, Keller fails to teach that the injection-molding process is carried out using a pressure great than 40 bar. However, Keller teaches that the solid content of the spray ranges from 0.1-10% by weight [00668]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the injection-molding process be carried out using a pressure at least greater than 40 bar in order to carry out the 10% of the solid's weight.

Regarding claim 26, Barthlott teaches that the article is consisted of the objects as presently claimed (col. 2, lines 36-47).

Claim 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Barthlott** (WO96/04123 published date of 2/15/96; herein referred to under the US equivalent 6,660,363), in view of **Keller et al.** (US 2002/0016433), and in view of **Baumann et al.** (US 6,800,354).

Art Unit: 1794

Regarding claim 13, Barthlott in view of Keller doesn't teach that the microparticles are impressed from 10-90% of their particle diameter within the surface of the product. Baumann teaches self-cleaning particles on a substrate with a height of 0.5-15 μm (col. 5, lines 13-17), which are embedded (col. 4, lines 23-27), forming a layer with a thickness of 5-1000 nm (col. 8, lines 29-39), which would obviously be impressed by at least 10% of the particle diameter for the purpose of providing a self-cleaning article (col. 2, lines 66-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott's structure produced by Keller's method with a self cleaning surface wherein the particles are impressed by at least 10% and not more than 90% of their diameter, as taught by Baumann, in order to provide an article with a self-cleaning surface.

Claims 20-24 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Barthlott** (WO96/04123 published date of 2/15/96; herein referred to under the US equivalent 6,660,363), in view of **Keller et al.** (US 2002/0016433), and in view of **Huffer et al.** (WO01/73162 published date; herein referred to under the US equivalent 6,783,807).

Regarding claim 20, Barthlott doesn't specifically teach the diameter of the particle size, however, Barthlott does teach that optimum results are only achieved if the particles are employed having a relatively narrow grain size distribution (col. 3, lines 8-11). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott's particle size to be within the range as claimed in order to obtain a desired surface structure (col. 3, lines 6-7). Further, Huffer teaches that the particles have a mean diameter of 1-50 μm (col. 6, lines 23-24). It would have been obvious to one of ordinary skill in the art at the time of the

Art Unit: 1794

invention to have Barthlott's particle to be within the particle size as claimed, since Huffer teaches that having a larger particle size is not preferred for a self cleaning article (col. 6, lines 25-26). Furthermore, Keller teaches that the hydrophobic particles are 0.05-100 μm [0060]. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott's particle size to the teachings of Keller in order to produce a surface of an article having a self-cleaning effect (Abstract).

Regarding claim 21, Barthlott doesn't specifically teach the material of the hydrophobic particles as claimed. Huffer teaches that the microparticles are selected from the group claimed by the applicants (col. 4, lines 6-12). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Barthlow's particles to be as presently claimed, since Huffer teaches that it will reduce the tendency of the particles to accumulate solids from fluids with formation of deposits (col. 4, lines 20-22).

Regarding claim 22, Barthlott teaches that the microparticles have hydrophobic properties (col. 3, lines 8-9).

Regarding claims 23-24 and 31, Huffer teaches that the particles have hydrophobic properties by virtue of treatment before coating of a compound of alkylsilanes and fluoroalkylsilanes (col. 6, lines 1-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Barthlott's particle to the teachings of Huffer in order to produce an article with a surface that reduces the tendency of an accumulation of solids and formation of deposits (col. 3, lines 53-55).

Response to Arguments

Applicant's arguments filed 3/2/09, with respect to the rejection(s) of claim(s) 1-30 under Oles et al. (US 2002/0150723) have been fully considered and are persuasive. Applicant has submitted a certified English Translation to overcome the rejection of Oles and has claimed priority to German patent application DE 10210673.8, filed on 3/12/02. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Barthlott and Baumann.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA CHAU whose telephone number is (571)270-5835. The examiner can normally be reached on Monday-Thursday, 8:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Bernatz, acting SPE for Carol Chaney can be reached on (571) 272-1505. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Holly Rickman/
Primary Examiner, Art Unit 1794

/Linda Chau/